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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/016,992	12/13/2001	Densen Cao	5061.2 P	6784
7590	03/17/2005		EXAMINER	
Parsons, Behle & Latimer Suite 1800 201 South Main Street P.O. Box 45898 Salt Lake City, UT 84145-0898			LEWIS, RALPH A	
			ART UNIT	PAPER NUMBER
			3732	
			DATE MAILED: 03/17/2005	

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/016,992	CAO, DENSEN	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ralph A. Lewis	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 15 December 2004.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-5, 7-10 and 12-17 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5, 7-10 and 12-17 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 13 December 2001 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|  | 6) <input type="checkbox"/> Other: _____                                    |

### **Rejections based on 35 U.S.C. 112, second paragraph**

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 is dependent on claim 16.

### **Withdrawal of Indicated Allowable Subject Matter**

The indicated allowability of the subject matter of claims 5, 6, 10 and 11 is withdrawn in view of the following new interpretation of the claim language.

### **Rejections based on Prior Art**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 7-10, 16 and 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Mills et al (WO 99/16136).

Mills et al discloses a dental curing light (page 1, second paragraph) comprised of a hand held wand (Figure 5) having a light module 47, an elongated heat sink 45, 50, 51, having a distal end surface serving as a mounting platform on which primary heat sink 48 is mounted and light emitting semiconductors 43 mounted to the primary heat sink 48. In regard to the "controls" and "circuitry" limitations of claim 17, it is an inherent necessity that the Mills et al device include an on/off switch. In regard to the "light emitted by the light emitting semiconductor device will be emitted at an angle of from about 30 degrees to about 150 degrees to said elongated heat sink longitudinal axis" limitation, it is noted that the Mills et al light guide 47 is bent at the tip causing the light emitted by the dental curing light. Additionally, in regard to claim 10, it is noted that light emitting semiconductor devices produce incidental light that is orthogonal to the base on which the semiconductor is mounted as evidenced by applicant's Figures 21a, 21a and 22a.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-10, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills et al (WO 99/16136).

Mills et al does not explicitly appear to state that the disclosed dental photo curing device has an on/off switch (i.e. "controls for initiating and terminating light transmission" and "circuitry in electrical connection with said controls" as required by claim 17. The use, however, of a conventional on/off switch to turn the device on and off when being used would have most certainly been obvious to the ordinarily skilled artisan.

Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills (WO 99/16136) in view of Prinsze (US 4,092,580).

Mills discloses a dental curing light (page 1, second paragraph) comprised of a hand held wand (Figure 5) having a light module 47, an elongated heat sink 45, 50, 51, a mounting platform 48 and light emitting semiconductor device 43 mounted on the mounting plat form 48. Mills discloses that the device operates on DC power from batteries 52 and that the power supply may be rechargeable (see last paragraph of page 13), but doesn't expressly provide for the wall outlet power adapter for converting AC power to DC power as required by the claims. Wall outlet AC to DC adapters for recharging light batteries is old and well known as taught for example by Pinsze who uses wall AC to DC adapter 37 for charging light batteries 84, 85, 86. To have used such conventional prior art means as that suggest by Pinsze for recharging the Mills batteries in light of the Mills suggestion that the battery power source may be recharged

would have been obvious to one of ordinary skill in the art. Additionally Mills does not expressly state how the LEDs 43 are connected to platform 48, however, the use of a conventional prior art adhesives would have been obvious to one of ordinary skill in the art, it further noted that all adhesives have at least some degree of heat conductivity and light reflectivity.

In regard to the "light emitted by the light emitting semiconductor device will be emitted at an angle of from about 30 degrees to about 150 degrees to said elongated heat sink longitudinal axis" limitation, it is noted that the Mills et al light guide 47 is bent at the tip causing the light emitted by the dental curing light. In regard to claim 10, it is noted that light emitting semiconductor devices produce incidental light that is orthogonal to the base on which the semiconductor is mounted as evidenced by applicant's Figures 21a, 21a and 22a.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mills (WO 99/16136) in view of Doiron et al (5,698,866).

In Mills the LEDs are mounted directly on a flat heat well 48. Doiron et al, however, teach that an improvement over mounting diodes on a flat surface (Figures 9 and 10) is mounting them in a well (Figures 11 and 12) so that more light from the LEDs is reflected forward in the desired direction. To have mounted the Mills LEDs in wells as taught by Doiron et al so that more light is reflected forward in the desired direction would have been obvious to one of ordinary skill in the art.

### **Allowable Subject Matter**

Independent claims 1 and 7 would be allowable if the last clause of the claims were amended to read:

"wherein said mounting platform is oriented so that when a light emitting semiconductor device is mounted on it, light emitted directly forward by the light emitting semiconductor device will be emitted at an angle of from about 30 degrees to about 150 degrees to said elongate heat sink longitudinal axis."

The "directly" limitation would exclude an interpretation wherein the emitted light is later bent by a light guide such as 41 of Mills et al. The "forward" limitation would exclude an interpretation of the incidental light that is emitted from the sides of the semiconductor.

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(703) 308-0770**. Fax (703) 872-9302. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Kevin Shaver, can be reached at (703) 308-2582.

R.Lewis  
March 14, 2005



Ralph A. Lewis  
Primary Examiner  
AU 3732